

What is Claimed is:

1. A compliant member for use in a fuel cell having a plate structure defining a wet seal area, said wet seal area being adjacent an electrode and current collector, said compliant member being arrangeable in said wet seal area and comprising a body member having sections
5 extending outwardly of the plane of the body member, said sections imparting compliance to said compliant member.
2. A compliant member according to claim 1, wherein said body member is configured to be fit within said wet seal area in which said compliant member is arranged.
3. A compliant member according to claim 1, wherein said wet seal area is defined
10 by the region between a flat section and another portion of said plate structure opposite said flat section, said flat section being a part of a flange formed by folding over an edge of said plate structure so that said flat section faces a surface of said plate structure having said another portion.
4. A compliant member according to claim 2, wherein said body member is flat and
15 one side of each of said sections of said body member is joined to said body member.
5. A compliant member according to claim 4, wherein the one side of each of said sections is on the same side of that section as the side that each other one side is on its respective section.
6. A compliant member according to claim 5 wherein said body member and said
20 sections are made from a superalloy material or spring.
7. A compliant member according to claim 6, wherein in the uncompressed state of said compliant member, the side of each of said sections opposite said one side joined to said body member is disposed at a distance of 0.01-0.06 inches from said flat body member, and said sections extend outwardly of the plane of said flat body member at an angle of 2-50 degrees.

8. A compliant member according to claim 7, wherein said angle is reduced as compressive load is applied to said fuel cell.

9. A compliant member according to claim 8, wherein said sections are disposed in the plane of the flat body member when said compliant member is fully compressed.

5 10. A compliant member according to claim 6 wherein said superalloy material is one of Inconel 718, Waspaloy and Rene-41.

11. A compliant member according to claim 6 wherein said body member and each of said sections is rectangular.

12. A compliant member according to claim 1, wherein said sections are arranged in
10 rows which extend along the length of said body member and which are spaced along the width of said body.

13. A compliant member according to claim 12, wherein one side of each of said sections of said body member is attached to said body member.

14. A compliant member according to claim 13, wherein said one side of each of said
15 sections extends along one of the length of said body member and the width of said body member.

15. A compliant member according to claim 14, wherein the one side of each of said sections extends along the length of said body member.

16. A compliant member according to claim 14, wherein the one side of each of said
20 sections extends along the width of said body member.

17. A compliant member according to claim 12, wherein said rows of sections are offset one from the other in the length direction of said body member.

18. A fuel cell for use in a fuel cell stack, said fuel cell having a plate structure defining an active fuel cell area and a wet seal area bordering said active fuel cell area, said fuel cell further comprising:

a current collector abutting said active fuel cell area and extending into said wet seal area;

5 an electrode abutting said current collector over a region which excludes the region of said current collector extending into said wet seal area;

a compliant member abutting said current collector over a region of said current collector extending into said wet seal area, said compliant member comprising a body member having sections extending outwardly of the plane of the body member, said sections imparting
10 compliance to said compliant member.

19. A fuel cell according to claim 18, wherein two opposite edges of said plate structure are folded over a first surface of said plate structure forming two flanges adjacent said first surface of said plate structure, each of said flanges comprising a flat section spaced apart from and parallel to said first surface of said plate structure, said wet seal area being defined by
15 the region between a flat section of a first one of said two flanges and a portion of said first surface of said plate structure opposite that flat section.

20. A fuel cell according to claim 19, wherein said active fuel cell area is the area between said two flanges on said first surface of said plate structure.

21. A fuel cell according to claim 20, wherein said electrode is one of a cathode and
20 an anode electrode.

22. A fuel cell according to claim 21, further comprising a further compliant member abutting said current collector over a region of said current collector extending into a further wet seal area bordering said active area, said further wet seal area being defined by the region between a flat section of a second one of said two flanges and a portion of said first surface of

said plate structure opposite that flat section, said further compliant member comprising a further body member having further sections extending outwardly of the plane of the further body member, said further sections imparting compliance to said further compliant member.

23. A fuel cell according to claim 18, wherein said body member is configured to fit
5 within said wet seal area.

24. A fuel cell according to claim 18, wherein said body member is flat and one side of each of said sections of said body member is joined to said body member.

25. A fuel cell according to claim 24, wherein the one side of each of said sections is on the same side of that section as the side that each other one side is on its respective section.

10 26. A fuel cell according to claim 24, wherein said body member and said sections are made from a superalloy material or spring.

27. A fuel cell according to claim 26, wherein in the uncompressed state of said compliant member: the side of each of said sections opposite said one side joined to said body member is disposed at a distance of 0.01 - 0.06 inches from said body member, and said sections
15 extend outwardly of the plane of said flat body member at an angle of 2-50 degrees.

28. A fuel cell according to claim 27, wherein said angle is reduced as compressive load is applied to said fuel cell.

29. A fuel cell according to claim 28, wherein said sections are disposed in the plane of the flat body member when said compliant member is fully compressed.

20 30. A fuel cell according to claim 26 wherein said superalloy material is one of Inconel 718, Waspaloy and Rene-41.

31. A fuel cell according to claim 26 wherein said body member and each of said sections is rectangular.

32. A fuel cell according to claim 18, wherein, said sections are arranged in rows which extend along the length of said body member and which are spaced along the width of said body.

33. A fuel cell according to claim 32, wherein one side of each of said sections of said body member is attached to said body member.

5 34. A fuel cell according to claim 33, wherein said one side of each of said sections extends along one of the length of said body member and the width of said body member.

35. A fuel cell according to claim 34, wherein the one side of each of said sections extends along the length of said body member.

36. A fuel cell according to claim 34, wherein the one side of each of said sections
10 extends along the width of said body member.

37. A fuel cell according to claim 32, wherein said rows of sections are offset one from the other in the length direction of said body member.

15

20